

5266

5266

Form 504	
U. S. COAST AND GEODETIC SURVEY	
DEPARTMENT OF COMMERCE	
DESCRIPTIVE REPORT	
Type of Survey	<i>Hydrographic</i>
Field No.	Office No. <i>5266</i>
LOCALITY	
State	<i>California</i>
General locality	<i>California</i>
Locality	<i>Coast</i>
<u>1932-33</u>	
CHIEF OF PARTY	
<i>F. L. Peacock</i>	
LIBRARY & ARCHIVES	
DATE	

5266

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

MAY 9 1933

Acc. No. _____

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

State: California

11-5613

DESCRIPTIVE REPORT.

Hydrographic Sheet No. 5266

LOCALITY:

CALIFORNIA COAST

NORTHWEST OF MONTEREY BAY

~~DAVENPORT~~ TO SANTA CRUZ BAY

TO EL JARRO Pt.

1932-3

CHIEF OF PARTY:

Fred. L. Peacock,

5266

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
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MAY 9 1933

REG. NO. 5266

HYDROGRAPHIC TITLE SHEET

Acc. No. *Shalomy*

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 48

REGISTER NO. 5266

State California

General locality ~~Monterey Bay~~ Monterey Bay

Locality Santa Cruz Idr., to El Jarro Pt.

November 25, 1932

Scale 1:40,000

Date of survey to February 5, 1933
(Supplemental work on April 26, and 27, 1933.)

Vessel GUIDE

May 2, 1933

Chief of Party Fred. L. Peacock,

Surveyed by Fred. L. Peacock, R. F. A. Studds, and J. H. Brittain.

Protracted by E. R. Huber and G. E. Logan.

Soundings penciled by E. R. Huber and G. E. Logan.

Soundings in fathoms ~~2000~~

Plane of reference M. L. L. W.

Subdivision of wire dragged areas by _____

Inked by *Warner H. Bamford*

Verified by *W.H.B.*

Instructions dated April 4, 1932

Remarks: Positions by visual sextant fix. Soundings by Fathometer.

X.W.W. 8/26/42

DESCRIPTIVE REPORT
to accompany

HYDROGRAPHIC SHEET FIELD NO. 48

Coast of California

U.S.C. & G.S.S. GUIDE
1932-1933

INSTRUCTIONS:

Instructions for the hydrography on this sheet are dated November 14, 1932. The work was performed in accordance with the season's instructions dated April 4, 1932.

CHARACTER OF WORK:

The hydrography on this sheet is all visual fixed position hydrography. The soundings were all obtained with the fathometer except for 22 hand lead and 95 wire vertical cast soundings for fathometer comparisons. The depth range is from 15 to 600 fathoms. The major part of the work, however, was within the 100 fathom curve.

The sounding line spacing is approximately 300 meters inside the 30 fathom curve, 700 meters inside the 50 fathom curve, and 760 meters outside the 50 fathom curve.

Cross lines are spaced roughly four miles apart.

The position interval is in general three minutes, with supplemental positions at all radical changes of course and speed.

The scale of this sheet is 1:40,000.

LIMITS:

The hydrography on this sheet covers an area of 79 square statute miles in the northerly approaches to Monterey Bay, and roughly approximating the area surveyed in 1925 by the Ship DISCOVERER on hydrographic Sheet No. H-4455.

It extends between inshore launch hydrography along the coast, and deep water on the south and southwest. The bottom falls away rapidly outside the 100 fathom curve.

The sheet is entirely surrounded by the 1932-1933 season's work of the combined parties of the Ship GUIDE.

H-5245 ✓

It joins ship sheet No. 44 on the northwest, ship sheets Nos. 81, 121, and 82 on the west and south, ship sheet No. 45 on the east,

H-5247

and launch sheets Nos. 6, 7, and 8 along the inshore limits.

CONTROL:

The control for the hydrography on this sheet consisted mainly of hydrographic signals over triangulation stations of the 1931 scheme, executed by Lieutenant C. D. Meany, plotted on the North American 1927 adjusted datum. In addition, three signals, located by the 1932 topographic unit of the Ship GUIDE'S party, were used. The location of these signals was fixed by standard topographic practice. ✓

DATES OF SURVEY:

Work on this sheet began on November 25, 1932, and was concluded on February 5, 1933. *also Apr. 26, 27 and May 2nd*

TIDAL REDUCERS:

Tidal reducers for the soundings on this sheet were obtained from the Santa Cruz portable automatic tide station. It was considered unnecessary to apply any correction for time or range to the tides at this station for the area of this sheet. ✓

For further information on the subject of tidal reductions the reader is referred to the season's tidal report, which covers all the tidal work of the party on the Ship GUIDE from April 28, 1932, to February 28, 1933.

APPARATUS CORRECTIONS:

The apparatus corrections for the soundings on this sheet, consisting of the constant fathometer correction, and the velocity correction for the temperatures, salinities, and densities of the water sounded, was obtained from an analysis of the temperatures, salinities, dial speed tests, and comparative vertical casts throughout the season. Dial speed was approximately constant throughout the season and was a little fast. Temperature and salinity underwent a minor, seasonal variation. The index correction was approximately zero throughout the entire season with the exception of a few periods of short duration, when the fathometer was not operating satisfactorily, but was subject to a small variation at times dependent on the vessel being unusually deep or light in the water. ✓

It is to be noted that a number of the periods mentioned above when the fathometer failed to function properly occurred on February 2, 3, 4, and 5, 1933, while sounding on this sheet. A large number of supplemental vertical casts were taken during these days to determine a proper index correction. While

the vertical casts indicated comparatively large index corrections during short periods of sounding, the resultant corrected soundings plotted very well. No discrepancy of over two fathoms is to be found on the sheet.

For further information on the subject the reader is referred to the Season's Report on Temperature and Salinity Determinations, which also covers in complete detail dial speed tests, sounding sheave tests, and the results of comparative vertical casts.

SLOPE CORRECTIONS:

In the southwest part of the sheet where the bottom breaks off rapidly into deep water, six soundings were corrected for slope.

The correction for slope was applied to these soundings in accordance with the methods outlined in special publication No. 165. However, due to the very uneven and ragged bottom in this area, the correction for slope is considered doubtful. On all six soundings the correction seems to be too large and the soundings uncorrected for slope give a better delineation of the bottom than the corrected soundings. It is therefore respectfully requested that final verification of these soundings be given careful consideration.

No slope corrections used on the sheet

BOTTOM CHARACTERISTICS:

Thirty bottom characteristics, distributed over the area of this sheet, were obtained. In the shoaler depths the bottom is fine gray sand and mud. Offshore, in deeper depths, the bottom merges from sand into mud and gravel. ✓

DANGERS:

There appears to be no dangers to navigation within the limits of the hydrography of this sheet. ✓

DISCREPANCIES:

In general the soundings throughout this area check with those of previous surveys, and the crossings are very good. In a few places discrepancies in crossings and between adjacent lines of a maximum of two fathoms are noted. Such instances undoubtedly result from cumulative effect of personal equation, inexact interpretation of the effect of swell, the applying of tidal and apparatus corrections in half-fathom units separately, and the failure of the fathometer to function properly during periods of short duration.

Respectfully submitted,

E. H. Sheridan
E. H. Sheridan,
Aid, C. & G. Survey.

Respectfully forwarded,
Approved:

Fred. L. Peacock
Fred. L. Peacock,
Chief of Party, C. & G. Survey,
Commanding Ship GUIDE.

STATEMENT
to accompany

HYDROGRAPHIC SHEET FIELD NO. 48

Coast of California
U.S.C. & G.S.S. GUIDE
1932-1333

The smooth plotting of this sheet and the penciling of soundings thereon was done by Mr. E. R. Huber, civil engineering hand, under the general supervision of Ensign E. H. Sheridan. Ensign Sheridan has drawn the depth curves. ✓

In his report Ensign Sheridan has stated that, in general, the soundings on this sheet check with those of previous surveys. While this statement is true, the final review of this sheet by the Chief of Party and comparison with the photostat of sheet No. H4455, developed some differences deemed deserving of comment.

In general the recent survey gives depths slightly greater than the 1925 survey. The difference appears to average about 1 fathom or a little less. ✓

Along the 50 fathom curve, between Latitudes 36° - $54'N$ and 36° - $58'N$, and Longitudes 122° - $14'W$ and 122° - $18'W$, discrepancies were noted which caused the Chief of Party to make a re-investigation of this area on April 26 and 27, 1933. This additional work has been reduced and has been plotted on the smooth sheet by Mr. G. E. Logan, civil engineering hand. It shows that the area is somewhat rough and irregular, but confirms the bottom configuration of the more recent survey. ✓

The principle discrepancy in this area centers in Latitude 36° - $54.7'N$ and Longitude 122° - $14.4'W$. As the discrepancy here amounts to as much as 10 fathoms in places, it is respectfully recommended that the control for that portion of "J Day on Sheet H4455 be examined. ✓

The other major differences in this area center about Latitude 36° - $56'N$ and Longitude 122° - $15.5'W$. The recent survey confirms depths of less than 50 fathoms just south of this point, but indicates that these depths less than 50 fathoms are a detached shoaling outside the general trend of the 50 fathom curve. ✓

Another minor difference in depth curves is noted in the vicinity of Latitude 36° - $47'N$ and Longitude 122° - $03'W$.

While it may be possible that changes in the depth in this area of the extent of the discrepancies between these two surveys has occurred, there are some indications that part of the discrepancies is a matter of control. The fixed position control of the recent survey is deemed rigid throughout, while it is possible that at the time of the previous survey control of equal rigidity was impracticable.

Attention is directed to the vicinity of position 37, "C" Day, this sheet: overlapping soundings from sheet field No. 44 show a discrepancy of 3 fathoms. The soundings in question, reduced by regular methods, are decreased by a zero apparatus correction, consisting of fathometer speed correction of (-)0.2 fathoms, and echo correction of 0.0 fathoms, and an index correction of 0.0 fathoms, and a $\frac{1}{2}$ fathom correction for tides. The fathometer index corrections used in the reduction of the past season's work for depths less than 50 fathoms, were determined by meaning all the vertical, cast comparisons for each trip to the working grounds, as this method seemed the best on account of bottom irregularities. Investigation of this discrepancy shows that on position 31, "C" Day, a vertical cast comparison indicates an index correction of (-)0.4 fathoms for that time and place. The known corrections applicable to these soundings are then as follows:

Tide- - - - -	(-)0.7
Fathometer Index Correction - -	(-)0.4
Fathometer Speed Correction - -	(-)0.2
Fathometer Echo Correction- - -	0.0
TOTAL- - - - -	(-)1.3

(139 J Oct 22, 1932)

(-)0.6
(+)0.6
(-)0.3

0.0

(-)0.3
(-)1.0

used in reducing
adj. in reduction
H 5245 Ryle

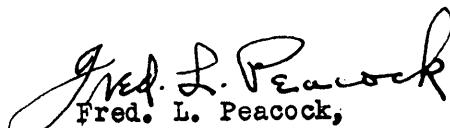
Thus it seems that these soundings could well have been corrected by $1\frac{1}{2}$ fathoms instead of the $\frac{1}{2}$ fathom correction resulting from the methods in vogue.

As the records for sheet field No. 44 had been forwarded to Washington, a similar investigation of the overlapping soundings from sheet 44 cannot be made at the present moment. However, an examination comparing the sounding line containing the questionable soundings on sheet 44 with the adjacent sounding lines on either side on that sheet indicates the possibility that a similar result would be obtained in the opposite direction if all known corrections were combined and applied to the soundings. If that were true the discrepancy would have been reduced from 3 fathoms to 1 fathom, an amount of discrepancy easily explained by such accidental errors as personal equation of observer, the difficulty of exactly estimating the effect of swell, etc.

It has been the recent practice of this party when obtaining comparative vertical casts in moderate depths to make several comparisons at each stop with 6 to 8 stops for each full day of hydrography. The Chief of Party now believes that in such depths stops for verticals cast comparisons should be made at least every hour

and a half, with a minimum of four comparisons at each stop, and that the index correction determined from adjacent comparisons only should be used for the reduction of soundings. Then, with careful attention to the determination of all other corrections, and the application of all corrections to the soundings in combined form, the frequency of the occurrence of such discrepancies as the one just discussed would be enormously reduced.

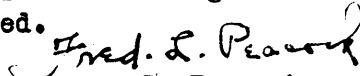
The completed smooth sheet field No. 48 has been inspected and is approved; however, as the plotting of this sheet was done by a temporary employee, it is recommended that office verification be correspondingly rigid. ✓


Fred. L. Peacock,
Chief of Party, C. & G. Survey,
Commanding Ship GUIDE.

April 29, 1933.

MEMORANDA

A few hours additional hydrography was done on May 1, 1933 to complete to the satisfaction of the Chief of Party the investigation of April 26th and 27th. This work has been reduced and plotted except that in certain small areas congestion prevented the plotting of all soundings obtained. It will be noted that the uncharted soundings are not needed, and confirm the configuration shown by the soundings which have been plotted. ✓


Fred. L. Peacock
Chief of Party C. & G. Survey
Commanding Ship Guide

LIST OF SIGNALS

to accompany

HYDROGRAPHIC SHEET FIELD NO. 48

TRIANGULATION

Hydrographic Name:	Location:
ANO	Ano Nuevo Light House, 1931
ANT	Trantor, 1931
OCEAN	Ocean, 1931
JARO	Jaro, 1931
GLASS	Glass, 1931
OUT	Oil Derrick Near Pars, 1931
WILD	Wilder, 1931
DER	Oil Derrick Near Bal, 1931
MORE	More, 1931
CRUZ	Santa Cruz Lighthouse, 1884
END	End, 1931
SOG	Sog, 1931
RIO	Hotel Rio Del Mar Stack, 1931
PID	Pigeon Point Lighthouse, 1931

TOPOGRAPHIC

NAT	Topographic signal - Sheet G
SAN	Topographic Signal - Sheet G
NEXT	Topographic Signal - Sheet G
ARCH	Topographic Signal - Sheet I

STATISTICS
to accompany
HYDROGRAPHIC SHEET FIELD NO. 48

Date 1932-3	Day	Stat. Miles Snd'g line	No. of Positions	No. of (echo) R.L. snd'gs.	VERTICAL CASTS Hd. Ld. Wire	No. of Bot. Smpls.
11-25	A	8.5	16	44	- 4	1
11-26	B	72.5	149	405	7 10	5
12-1	C	96.7	188	654	3 9	3
12-2	D	21.0	40	111	- 6	2
1-10	E	91.7	185	778	- 14	3
1-14	F	6.2	14	42	- 5	1
2-2	G	7.4	19	61	- 9	1
2-3	H	59.8	110	321	12 5	5
2-4	J	69.9	125	369	- 15	4
2-5	K	93.2	173	478	- 18	5
4-26	L	14.1	33	89	- 6	2
4-27	M	11.6	32	108	- 11	2
TOTALS - - -		552.6	1084	3450	22 112	34
5-2	N	14.1	42	154	32	1
Final Totals - -		566.7	1126	3604	22 144	35

AREA: In square statute miles, 79.0
In square nautical miles, 59.0

June 14, 1933.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 5266

Locality Santa Cruz Harbor to El Jarro Point, Coast of California

Chief of Party: Fred L. Peacock in 1932-1933

Plane of reference is mean lower low water, reading

3.0 ft. on tide staff at Santa Cruz

14.5 ft. below B. M. 2

Height of mean higher high water above plane of reference
is 5.3 feet.

Condition of records satisfactory except as noted below:

Paul C. Whitney
~~Acting~~ Chief, Division of Tides and Currents

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5266

The following statistics will be submitted with the
cartographer's report on the sheet:

Number of positions on sheet	1126
Number of positions checked	143
Number of positions revised	4
Number of soundings recorded	3770
Number of soundings revised	303
Number of signals erroneously plotted or transferred	NONE

Date: July 1933
Cartographer: Warren H. Bamford

SECTION OF FIELD RECORDS

REPORT ON HYDROGRAPHIC SHEET No. 5266

JULY 1933.

SURVEYED IN - NOV. 25, 1932 THRU FEB. 5, 1933.

CHIEF OF PARTY - FRED. L. PEACOCK

SURVEYED BY - FRED. L. PEACOCK, R. F. A. STUBBS, J. H. BRITAIN.

PROTRACTED BY - ^(CIVIL ENG. HAND) E. R. HUBER, G. E. LOGAN

SDGS. PLOTTED BY - E. R. HUBER, G. E. LOGAN

RECEIVED & INKED BY - W. H. BAMFORD

- 1./ The sounding records were found to be neat, legible, complete and to conform to the requirements of the Hydrographic Manual. ✓
- 2./ The protracting on this sheet was found to have been done exceptionally well. Some of the position numbers were too large and at times placed so near the soundings that they were partially obscured by the sounding when inked in. ✓

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

AND REFER TO NO.

3/ The soundings were not plotted very well on this sheet. When the time interval was irregular - the soundings were plotted very carelessly - no attention being paid to the change in time interval. A striking example of this is "M day" - 90% of the soundings on this day had to be respaced. On "B day" - from position 1B thru 21B - the original soundings were plotted - the verifier having to erase these and plot the reduced soundings.

4/ The sounding line crossings were found to be adequate. ✓

5/ The plan and extent of development was found to be satisfactory. ✓

6/ It was possible to draw the usual depth curves. NOTE: see TP12 ✓

7/ The sheet was fairly clean and the work was legible. ✓

8/ The field plotting was completed to the extent prescribed in the Hydrographic Manual. ✓

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AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No.

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U. S. COAST AND GEODETIC SURVEY
WASHINGTON

9./ The junction with H 5247 was found to be satisfactory.

The junction with H 5245 was found to be satisfactory with the exception of the work in the vicinity of position 37+38C (this sheet) where a difference of as much as three fathoms exists. (See pg. 6 Descriptive Report #2)

10./ At position "81 J" - the fathometer sounding and the vertical cast sounding disagreed by fourteen fathoms - inasmuch as this was the only comparison at this point - the fathometer sounding was rejected and the wire vertical cast sounding was plotted.

Whenever comparisons were made - there were usually several made at approximately the same point. Only the first comparison was plotted on the smooth sheet as to have plotted more would have made them all illegible. The comparisons plotted were marked (plotted) in green pencil in the sounding volume.

Steep slopes; probably difference in due to slope. Refer

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AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No.

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WASHINGTON

10. contd.

Positions 170 K thru 173 K were not plotted on this sheet as the left object is not on this sheet and this work has been plotted on H 5245, the adjoining sheet.

The slope corrections for the six soundings noted on page 3 of the Descriptive Report were not used as it was thought that their use would possibly indicate greater depths than actually exist in this submarine valley. The uncorrected sounding (with regard to slope correction) was inked in on the smooth sheet.

11. / In latitude $36^{\circ}-54.7'N$ and longitude $122^{\circ}-15.5'W$ the discrepancy between the hydrography on this sheet and that on the earlier survey - H 4455 was noted and a cursory investigation made by the verifier. It is recommended that the 1933 hydrography supersede that of the year 1924-1925 (H 4455) with no means of adjusting the line 10J-24J on H 4455 - having

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WASHINGTON

DEPARTMENT OF COMMERCE

H-5266

U. S. S. T. AND OCEANOGRAPHIC SURVEY
AND FOR THE BUREAU OF HYDROGRAPHY
IN FIELD ADDRESS THE DIRECTOR

been found to be expedient.

12/ As Chart No. 5402 shows the
thirty fathom curve - Capt Flowers
requested that it be shown on this
sheet - This curve was shown ✓
in brown ink.

Respectfully Submitted.

Warren H. Bamford

—

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

AND REFER TO No.

SECTION OF FIELD RECORDS
Review of Hydrographic Sheet No. 5266.
Santa Cruz Harbor to El Jorro Point, Monterey Bay, Calif.
Surveyed Nov. 1932 to May 1933.
Instructions dated Nov. 14, 1932 (Guide)

Chief of Party - F. L. Peacock
Surveyed by - F. L. Peacock, R. F. A. Studds, J. H. Brittain
Protracted and soundings plotted by - E. R. Huber, G. E. Logan
(G. E. Lands).

Verified and inked by - W. H. Bamford.

1. The records conform to the requirements of the Hydrographic Manual.
2. The plan and extent of development conform to the regulations and satisfy the specific instructions. The submarine valley at S. E. corner of the sheet should have had more vertical wire soundings.
3. Soundings are generally consistent with good agreement in depth on cross lines. The bottom slopes steeply outside the 100 fathom curve resulting in some apparent discrepancies. A comparative sounding in lat. $36^{\circ}47'.7$ long. $121^{\circ}56'.8$ gives a difference of 14 fathoms, which would indicate a slope of about 22° . None of the fathometer soundings on this sheet are corrected for slope and this should be kept in mind when comparing with other surveys in the vicinity of areas of 100 to 300 fathoms.
4. Depth curves can be drawn satisfactorily. The 30 fathom curve is shown in brown. It should be noted that slope corrections to the fathometer soundings would tend to shift the 100 and the 200 fathom curves inshore.
5. Junctions with survey sheets H. 5245, H. 5247 and H. 5279 are satisfactory. The Descriptive Report notes a discrepancy of 3 fathoms in lat. $37^{\circ}02'.2$ long. $122^{\circ}16'.8$ due probably to the method of correcting the soundings.

In lat. $36^{\circ}52'.3$ long. $122^{\circ}12'.3$ a 181 falls inshore of a 137, the latter being "red light direct" and the 181 "red light times 6". "The red light direct" readings are considered the more accurate readings and the 181 was rejected on both sheets.

6. Comparison with H. 4455 (1925) shows good general agreement with 1 to 2 fathoms greater depth on the 1932 survey out to the 100 fathom curve. In approximately 100 fathoms and deeper the bottom is very broken and the slopes too irregular to justify making slope corrections to fathometer soundings. Many more comparative vertical wire soundings than were taken would be necessary to determine the actual slope in this area.

Chart 5402 is in substantial agreement with this survey except that the 151 and the 71 in lat. $36^{\circ}53'$ long. $122^{\circ}15'$ should be removed and the 100 fathom curve rectified. These two soundings are from H. 4455, but on comparison with H. 5266 a re-examination of the plotting of line 10J to 23J was made. It should be rejected due to a probable confusion of the right object, (Sta. Cruz Light) which was close to the horizon and near the limit of visibility. The rejection is supported by evidence in the record that the field

H. 5266-2.

party had trouble with these positions. The 69 about 2 miles east of these two soundings is also somewhat doubtful in position and should be removed from the chart.

7. The field drafting was generally satisfactory. The protracting was good but the spacing of the penciled soundings had to be revised in many places.

8. Recommendation. This sheet (H. 5266) covers about the same area as H. 4455. For charting purposes it should supersede the latter sheet. For depths over 100 fathoms, H. 4455 should be given preference, see latter part of par. 3. No further surveys are deemed necessary for charting purposes.

9. Reviewed by R. J. Christman, August 26, 1933.

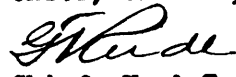
Sheet inspected by A. L. Shalowitz.

Examined and approved:


L. O. Colbert,
Chief, Field Records Section.


Chief, Field Work Section.


Chief, Chart Division.


Chief, H. & T. Division.